



**US Army Corps  
of Engineers**  
Louisville District

## **Rough River Dam – Fact Sheet**

### Lake History

Construction of Operating Tower and Outlet Works.....	November 1955 to January 1958
Construction of Dam and Spillway.....	May 1957 to December 1958
Placed into Complete Flood Control Operation.....	December 1960
Initial Project Cost (in FY 2004 dollars).....	\$20,531,000
Total Flood Damages Prevented (through 2003).....	\$115,161,000

### **Issues**

**Spillway:** Retained floodwaters cannot flow through the existing spillway fast enough to keep the dam from overtopping. An additional 5 feet of dam height or 85 feet of spillway width is required to provide the necessary flow capacity. Without modifications, the dam could fail by overtopping during the design flood, a yet to be experienced extreme event.

**Rock Toe:** During the original construction, rock fill was placed at the downstream toe of the dam without a filter between the earth embankment and the large rock pieces. Embankment soil is being washed away through the rock. A sinkhole formed in September 2002, and numerous depressions have developed on the downstream slope. Without repair, further soil loss and softening of the embankment at the downstream toe will eventually produce conditions which may promote instability of the dam.

**Stilling Basin:** The existing stilling basin does not adequately break up the force of the water discharging from the dam's conduit. The turbulence in the water has resulted in expensive periodic repairs to the downstream concrete apron. Without any modifications, the project's efficiency will be reduced, and operation of the outlet works during peak discharges could be threatened. Similarly, without repair, failure of the apron is possible which could undermine the outlet bucket and threaten the stability of the dam.

### **Planned Repairs**

**Spillway:** The top of the dam will be raised by 5 feet. This will be accomplished by raising the elevation of the roadway by 1.5 feet and constructing a 3.5-foot-tall, permanent, "Jersey" highway barrier wall along the upstream side of the road.

**Rock Toe:** The earth embankment behind the rock toe will be excavated to expose the backside of the rock fill. Granular filter material will be placed to prevent soil from washing into the rock. After placing the filter, the embankment will be restored to its original slope. In the area of the former river channel, the depth of the rock fill is too deep to safely excavate. A cement-bentonite slurry cutoff wall will be installed to the bottom of the rock toe to isolate and prevent further embankment softening upstream. Soil modification will be performed in conjunction with the shallow excavation to make the embankment slope more impervious to surface water infiltration behind the rock toe.

**Stilling Basin:** The outlet bucket will be redesigned to control the force of water from the conduit during peak discharges and to alleviate the need for continual repairs. A model was constructed at the Corps' Waterways Experiment Station in Vicksburg, Mississippi to assist in the design. The model showed that lengthening the basin by about 90 feet and placing concrete baffle blocks in the basin would adequately disrupt high-energy flows from the conduit. Access to the tailwater area to accommodate fishing will also be improved.

### **Budget, Schedule, and Lake Users Information**

Construction began on Phase I, the Spillway Remediation and Rock Toe Repair, in August 2006 and should be complete by January 2007. Design Efforts on Phase II, the Stilling Basin Modification, will be complete in Fiscal Year 2007. Construction on Phase II is anticipated to begin around September 2007 and should be completed by January 2008, subject to funds being budgeted and received. The total cost is expected to be about \$5 million.

During construction of Phase I, access across the dam will be limited to one lane of traffic. The public will not have access to the immediate area below the dam including the outlet area and access to the tailwater fishing area will be closed. However, the state park tailwater campground will remain open.

Phase II construction must be performed while the lake is at winter pool to minimize the risk of flood discharges which could wash out the partially completed construction and cause serious damage to the outlet structure or dam. The normal reservoir operation will be modified slightly in Fall 2007 in order to complete construction before spring filling in 2008. The lake level will start to be lowered to winter pool immediately after Labor Day weekend in 2007. The normally scheduled reservoir operation of slowly lowering the lake 2 feet between September 15 and October 15 will be altered for Fall 2007 in order to reach winter pool as early as possible.

# Conceptual Repairs to Rough River Dam

